

A Computer-Controlled Spraying System for Aerial Application

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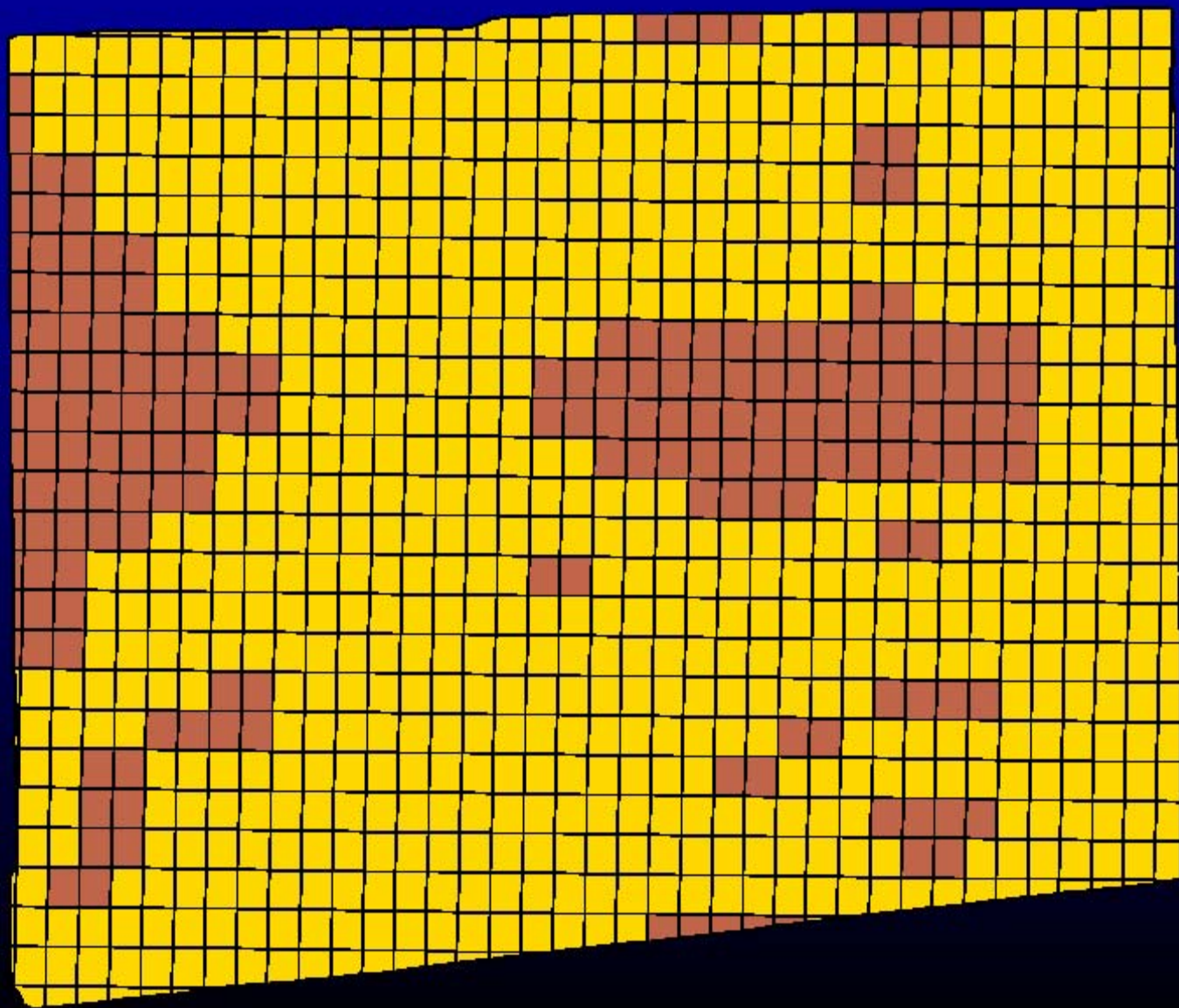


Why Variable Rate?

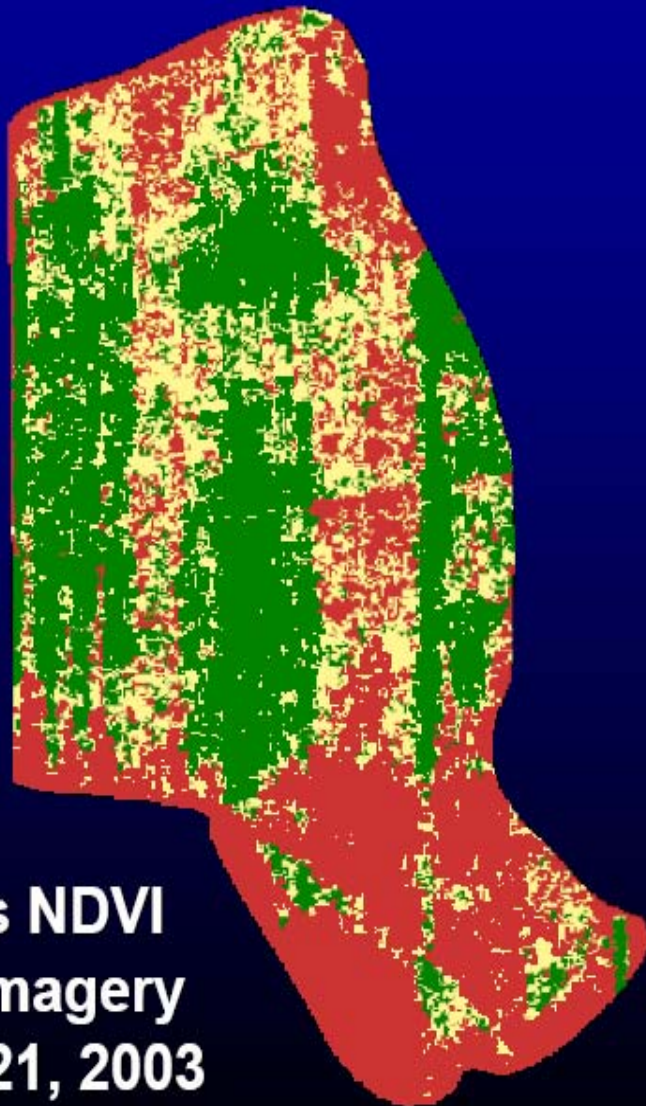
- Broadcast applications are typically made based on overall field needs
- Field needs, however, are generally site-specific
- Cost of inputs is rising
- Windows of opportunity
- Environmental Impact

Yield Based Aerial Insecticide Rx

On 
Off 



NDVI Based Defoliation Rx

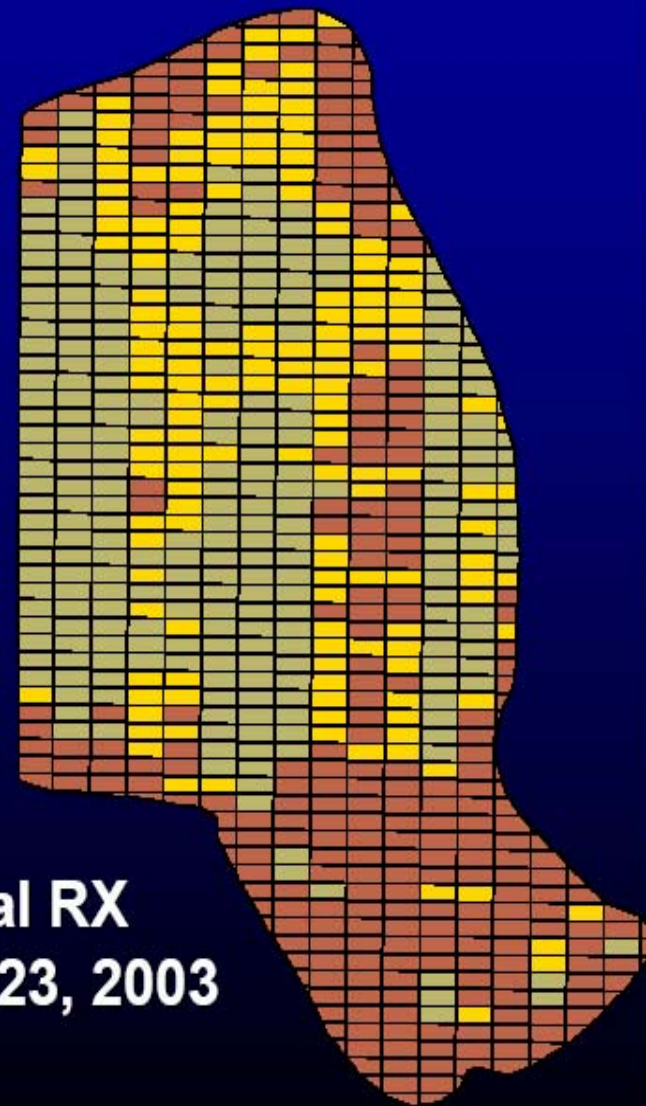


Rate/gpa

3 

4 

5 

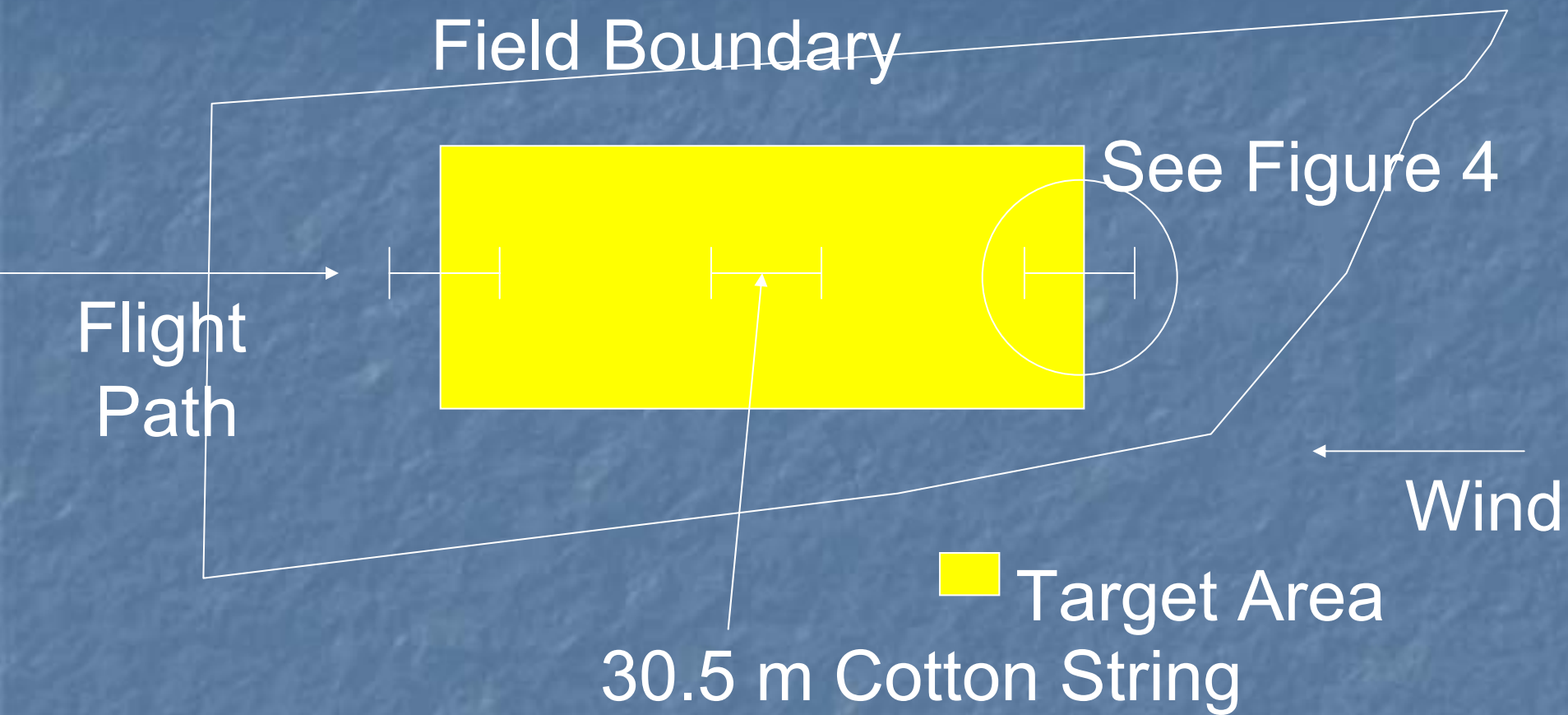


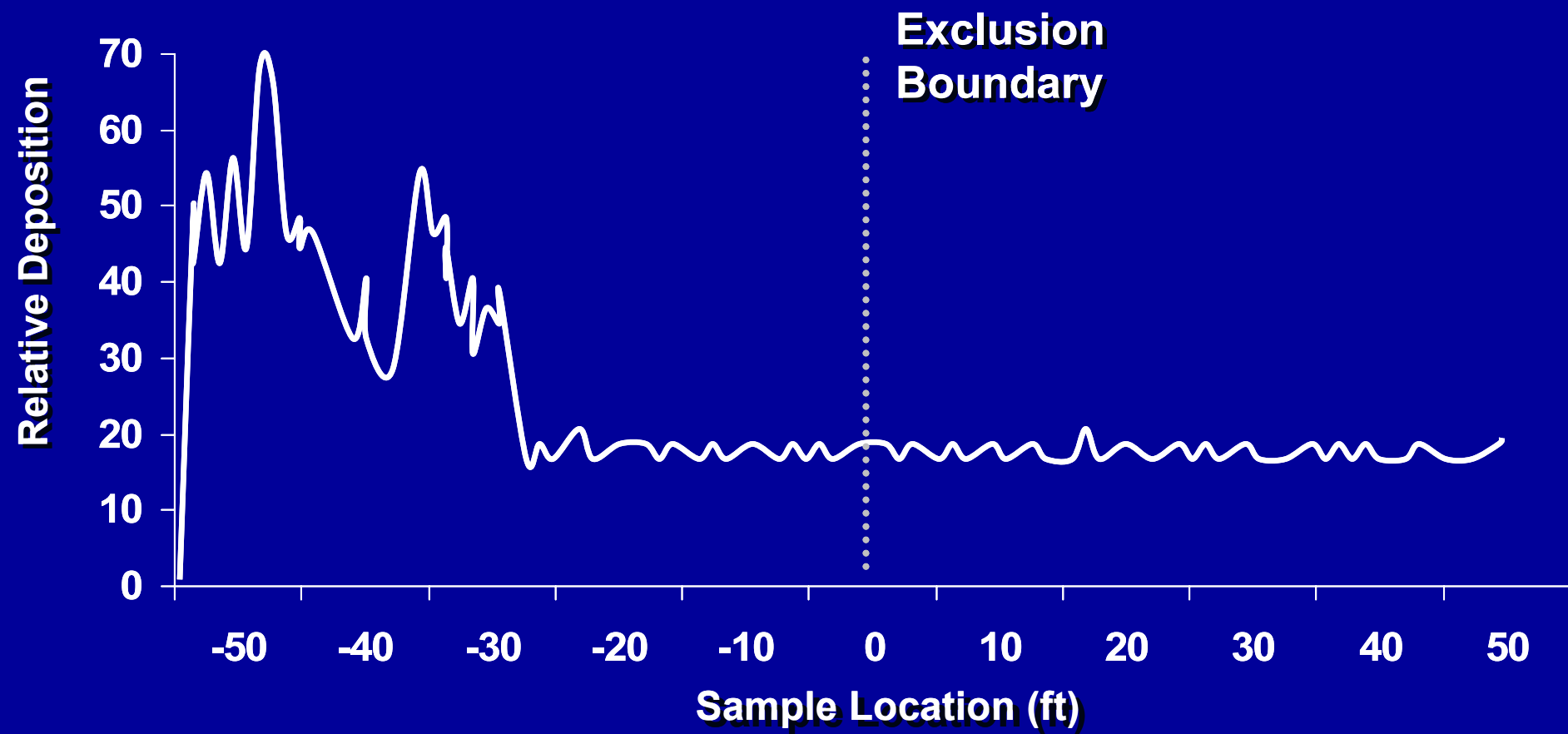
**3 Class NDVI
Aerial Imagery
August 21, 2003**

**Aerial RX
August 23, 2003**

Our Approach







Variable Rate Study





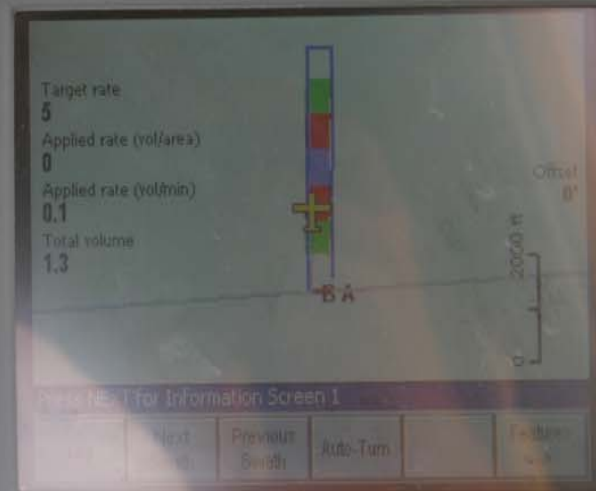
For N 33 3
Model
For N 333 333 N 333 333
Date 000000

GPM

5.0 0
1461 65

SENS APM SWA

N 33 3



Navigation controls including directional buttons (up, down, left, right), a central circular button with a triangle, and an ESC button.

Target rate

3

Applied rate (vol/area)

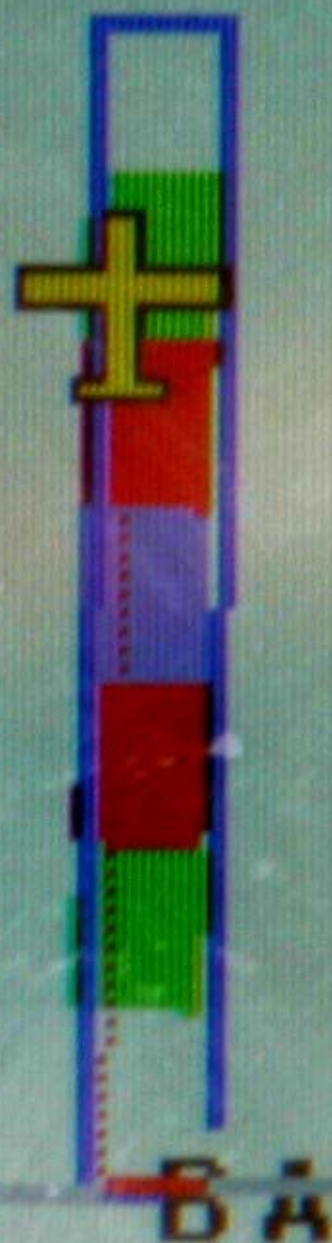
0

Applied rate (vol/min)

0.1

Total volume

1.4



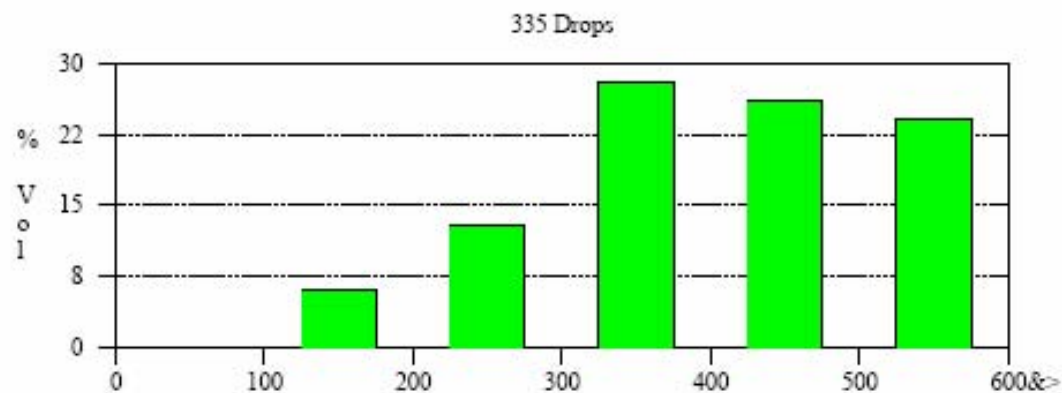
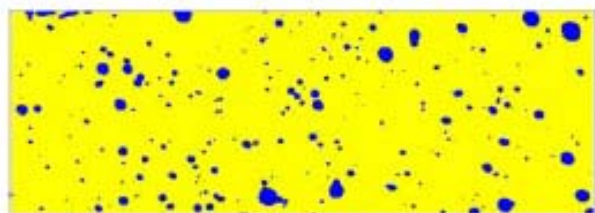




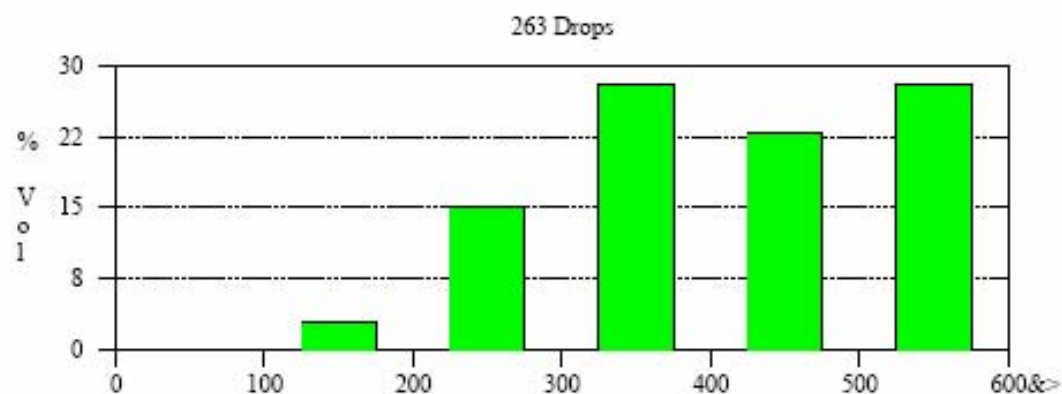
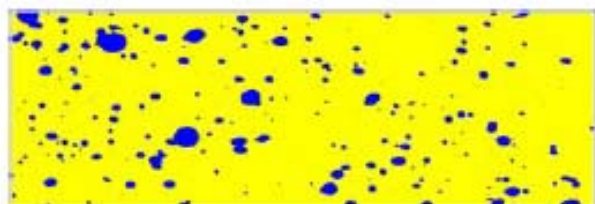




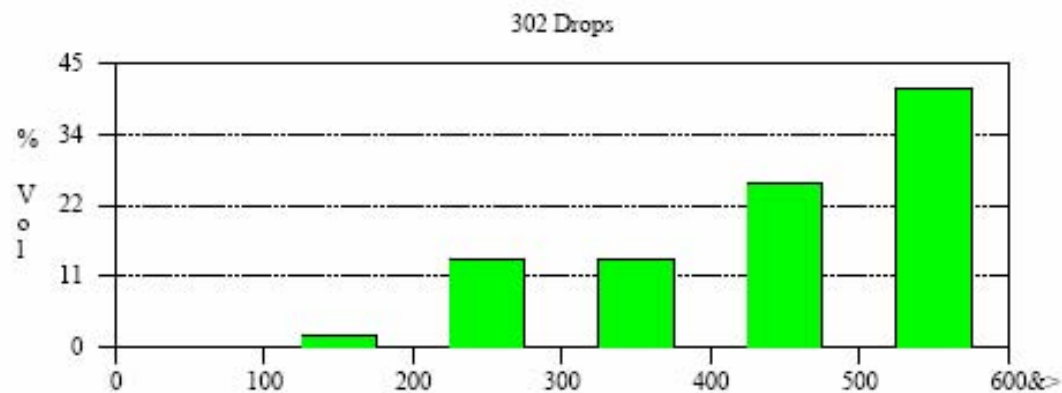
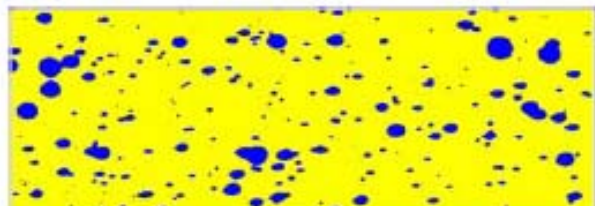
250.0 with 2.271 GPA & VMD = 403



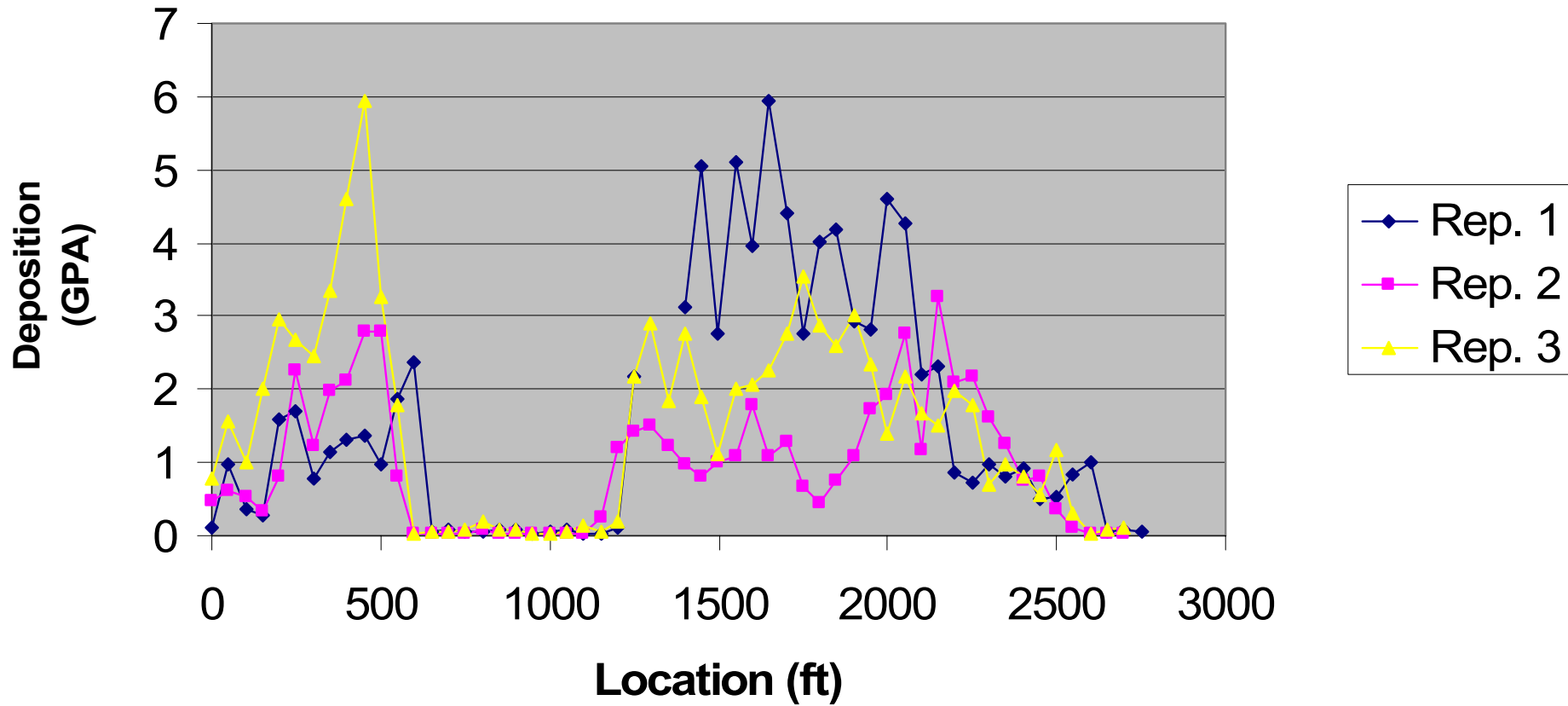
300.0 with 2.760 GPA & VMD = 409



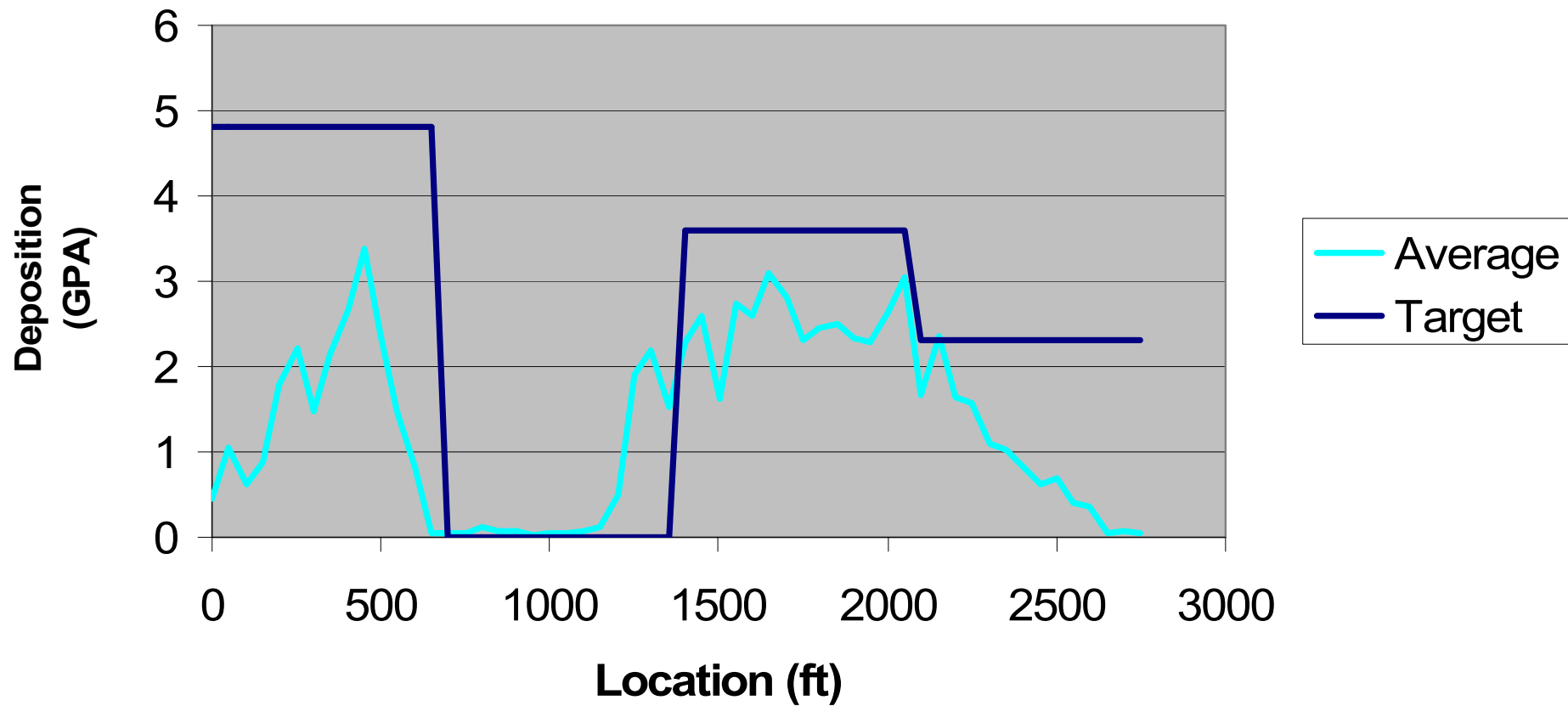
350.0 with 3.540 GPA & VMD = 455



Variable Rate Aerial Application Study



Variable Rate Aerial Application Study



Conclusions

- The computer-controlled, variable-rate aerial spray system was able to turn on and off, as programmed, to within fifty feet of the desired location.
- Initial testing with a variable rate system indicated that the system can adjust the delivered rate in-flight.
- Additional testing of the variable rate system needs to be conducted to achieve rates above 3.0 GPA and to accommodate for wind speed and direction.